examination. Exclusion criteria were LV hypertrophy, LV dilation or dysfunction, significant valve disease, atrial fibrillation, pulmonary hepertension and right ventricular enlargement or dysfunction. 2D strain values were obtained from 3 segments of the RV lateral wall in 4 chamber apical view for longitudinal strain and were compared to values in young healthy people (from the medical staff) and to values in patients with Fallot disease or idiopathic pulmonary hypertension.

Results: 30 old subjects (25 females) with mean age of 85.8±3.94 yrs [75 to 95 yrs] (group 1), 30 young healthy subjects (19 females) with mean age of 29.2±4.77 yrs [17 to 39 yrs] (group 2) and 26 subjects with RV disease ...were analyzed. The group 1 global LS values were significantly lower than those of group 2 and significantly higher than those of group 3. On the contrary tissue Doppler systolic wave (S') showed no difference between group 1 and 2 and were significantly lower in group 3.

	Group 1 N=30	Group 2 N=30	Group 3 N=26
Global RV LS	–23±7*†	–27±5	14.8±5.2
RV S'	13.9±3.0†	12.8±2.7	9.4±2.7

**p<0.05 vs group 2* *†p<0.05 vs group 3*

Conclusion: 2D strain allows RV function assessment and could note impairment this function in old people with "healthy" hearts not detected by conventional echocardiography and tissue Doppler velocities.

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Evaluation of left ventricular function assessed by 2D strain in severe mitral regurgitation with normal ejection fraction

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Background: Surgery decision in severe mitral regurgitation (MR) depends on left ventricular ejection fraction (*LVEF*). However better markers are needed to detect early LV dysfunction.

Aim: We sought to determine the ability of 2D strain assessed by speckle tracking imaging (STI) to detect subclinical LV dysfunction in severe chronic MR.

Methods: We studied 11 patients (8 men, 69 ± 10 years) who had severe organic MR with a LVEF ≥ 55%, and 10 healthy controls (HC). STI was performed to measure longitudinal strain (LS) in 4 and 2 chambers views, in apical long axis view, and to assess global longitudinal strain (GLS).

Results: The etiology of MR was degenerative in 10 patients and congenital in 1 patient. MR was severe in all patients (EROA = 66±23 mm^2).

Comparing HC *vs* patients, left atrial area was significantly lower (16,6±2 cm^2 *vs* 35±10 cm^2 ; p<0,001). There was no difference in LVEF (65,6±6% *vs* 63,8±3,6% ; p=ns), in end-diastolic volumes (64,5±19 ml/m^2 *vs* 61,5±17 ml/m^2 ; p=ns), or in GLS (-20±1,1% *vs* -21±3,6% ; p=ns). In the patient group, we could distinguish one group with increased GLS (n=7, GLS = -23,5±1,3% ; p<0,01 vs HC), and one with a trend for a lowered GLS (n=4, GLS = -16,6 ±0,5%; p=0,125), but this was probably due to a lack of statistical power (n=4). 3 patients in the second group were in atrial fibrillation showing the impact of MR on left cavities. Inter-observer variability was good (r=0,89).

LS was significantly lower in septoapical segment in HC *vs* patients (-21,6 ±3,5% *vs* -28,6±4,8% ; p<0,0001), as well as in anteroseptobasal (-16±3,4% *vs* -20,9±4,5% ; p<0,01) and anteroseptomedian (-18,7±2,8% *vs* -24,9±5,3% ; p<0,01) segments.

Conclusion: In patients with chronic organic MR and LVEF ≥ 55%, two populations may be highlighted by 2D-strain: one with significantly increased GLS and one with a trend for a lowered GLS. More studies are required to evaluate causes and clinical consequences.

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Predictive factors of Trastuzumab mediated cardiotoxicity in the setting of adjuvant chemotherapy for breast cancer: analysis of diastolic function

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Numerous clinical studies have demonstrated the therapeutic benefit of trastuzumab in women with breast cancer. However, a small but not insignificant proportion of patients have experienced trastuzumab-associated cardiotoxicity during these trials. This phenomenon is generally characterized by an asymptomatic reduction in left ventricular ejection fraction (LVEF) or, less often, congestive heart failure (CHF). The incidence and management of trastuzumab-mediated cardiotoxicity outside of clinical trials has not been well described;

Objective and methods: The aim of the study was to retrospectively evaluate the incidence of cardiac dysfunction, characterize its natural history, and identify the degree of reversibility using nuclear angioscintigraphy, in a population of HER-2 positive breast cancer patients receiving trastuzumab.

Results: Out of 196 patients (mean age 57 ± 9 years), 36 (18%) developed trastuzumab mediated cardiomyopathy, the majority asymptomatic.

Conclusion: Approximately 1 in 4 women may develop LV systolic dysfunction after treatment with adjuvant trastuzumab, necessitating careful patient selection and close serial monitoring using noninvasive cardiac imaging.

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Assessment of left ventricular volumes and function by 3D real-time transthoracic echocardiography in children: Comparison of Qlab and Tomtec full volume reconstruction

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Background: Three-dimensional echocardiography (3DE) allows calculation of ventricular volumes without geometric assumption on the ventricular shape. Real Time 3DE is validated to evaluate left ventricular (LV) volumes and function in adults. Accuracy of the two full volume reconstruction softwares Tomtec and Qlab have not been yet studied in children.

Aim: To apply 3DE in a normal pediatric population and to compare the left ventricular volumes measurements between these two analysing softwares.

Methods: Fifty pediatric patients (median age 10 years) with normal cardiac anatomy and function were included. 3D transthoracic echocardiography was performed with the X4-2 or X7-2 matrix probe (ie33, Philips Medical Systems, Andover, MA). Off-line left ventricular (LV) volume analysis was performed with QLAB 6.0 (Semi-automated border detection with biplane projections) and TomTec 4D LV analysis (primarily manual tracking with triplane projections and semiautomated border detection).

Results: Feasibility was 94% for both softwares. Measurements of LV stroke volume, end-diastolic and end-systolic were strongly correlated (r = 0.96; p < 0.0001). LV ejection fraction measurements were well correlated between the 2 methods (r = 0.78; p <0,0001). Mean LV ejection fraction dif-